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Group Art Unit: 2697
Examiner: Michael E. Robustelli

Amendment to the Claims

40 (Currently Amended). A label switched router for receiving packet flows and routing the packet flows through a fiber optic ring network, the router comprising:

a routing table that includes label switched working paths and label switched protection paths;

a network interface unit that inserts a routing label on packets and converts the packets to a synchronous optical signal for transmission on the fiber optic ring network;

a network condition unit for receiving and storing a failure indication received on overhead of a synchronous optical signal from the fiber optic ring network; ~~and~~

in response to receiving the failure indication on the overhead of a synchronous optical signal in the fiber optic ring network, a protection path switching unit for determining packets that are to be transmitted on working paths affected by the failure and relabeling the packets for transmission on a label switched protection path in the fiber optic ring network; and

wherein the failure indication in the overhead of the synchronous optical signal indicates a failed link or congested traffic conditions on a link in the fiber optic ring network, and wherein the failure indication includes information on type of problem and link location.

41 (Cancelled). Please cancel claim 41.

42 (Currently Amended). The label switched router of claim 40 ~~41~~, wherein the fiber optic ring network is a Synchronous Optical Network (SONET) network and the overhead failure signal is included in K1 and K2 bytes of SONET overhead.

43 (Previously added). The label switched router of claim 40 ~~41~~, wherein the fiber optic ring network is a Synchronous Digital Hierarchy (SDH) network and the overhead failure signal is included in overhead bytes of SDH overhead.

44 (Previously added). The label switched router of claim 40, wherein the network interface unit that inserts a routing label on packets includes a quality of service rating in the routing label.

45 (Previously added). The label switched router of claim 44, wherein the protection path switching unit prioritizes packets to be relabeled on a packet by packet basis for transmission on a label switched protection path by the quality of service rating in the routing label.

46 (Previously added). A method for protection switching in a label switched router with an interface to a synchronous optical network, comprising:

labeling packets to be transmitted on the synchronous optical network over a label switched working path and converting the packets into a synchronous optical format;

receiving a failure indication in overhead bytes of the synchronous optical network that an adjacent link has a failure or traffic congestion;

accessing a routing table that indicates label switched protection paths assigned to each label switched working path; and

labeling packets that were to be transmitted over the failed link to the assigned label switched protection path in response to the failure indication in the overhead bytes of the synchronous optical network.

47 (Previously added). The method of claim 46, wherein the failure indication in overhead bytes of the synchronous optical network is included in K1 and K2 overhead bytes of a synchronous optical network (SONET) frame.

48 (New). A label switched router for receiving packet flows and routing the packet flows through a fiber optic ring network, the router comprising:

a network condition unit for periodically determining if a failure has occurred in an adjacent link to the label switched router, wherein the failure may include traffic congestion conditions;

a network interface unit that inserts a routing label on received packets, converts the packets to a synchronous optical signal for transmission on the fiber optic ring network and in response to a failure being indicated by the network condition unit, inserting a failure indicator in overhead of the synchronous optical signal; and

a protection path switching unit for determining packets that are to be transmitted on working paths affected by the failure and relabeling the packets for transmission on a label switched protection path in the fiber optic ring network.